

REMARKS

In the Official Action, the Examiner acknowledged the election with traverse of Group I, but maintained the restriction/unity of invention requirement. The Examiner then rejected claims 1-3, 8, 11 and 14 under 35 U.S.C. §103(a) as allegedly being unpatentable over PCT Publication No. 2004/027502, as represented by Miyawaki et al., U.S. Patent Application Publication No. 2006/0009579, in view of Irving et al., U.S. Patent No. 4,836,878, and Slocki et al., U.S. Patent No. 4,383,090. In responding to certain of the arguments raised in the previous response, the Examiner took the position that the comparison between Example 1 and Comparative Example 1 in Table 2 on page 60 of the specification was inconclusive since any difference in results could be attributable to the absence of the partially esterified methacrylic acid-bisphenol F epoxy resin designated as ingredient (6). The Examiner further took the position that the evidence was not commensurate in scope with the claims. Finally, the Examiner set forth the justification of the reasons to incorporate a mercaptan curing agent into the composition of Miyawaki et al.

Prior to discussing the sole prior art rejection set forth in the Action, applicants believe that it is worthwhile to briefly discuss the present invention and the advantageous results which can be obtained therefrom. As discussed in greater detail in the specification, the present invention relates to a liquid crystal sealant composition which is applicable to a one-drop-fill method, which method involves performing light-curing by means of light irradiation to allow temporary fixing of the substrate and then performing complete curing by heat-curing. The curability with a combination of light and heat exerts an influence on the properties such as high-temperature and high-humidity adhesion reliability, and the display characteristics of liquid crystal display in the light-shielded area.

Based on the discussion provided in the Official Action, applicants submit that the Examiner may have misunderstood the invention and particularly the technical evidence provided in the specification. As set forth in claim 1, one aspect of the present invention provides a one component resin composition curable with a combination of light and heat which comprises an epoxy resin (1), an acrylic ester monomer and/or methacrylic ester monomer, or an oligomer thereof (2), a latent epoxy curing agent (3), a photo radical initiator (4), and compound having two or more thiol groups per molecule (5), wherein the ingredient (5) is contained in an amount of 0.001 to 5.0 parts by weight per 100 parts by weight of the resin composition.

The technical evidence provided in the specification clearly demonstrates the significance of the compound having two or more thiol groups per molecule in the defined amount. Examples 1-4 illustrate the invention while Comparative Examples 1-3 show that when the invention is not followed, substantially inferior results occur. In this regard, the Examiner's attention is respectfully directed to Example 1 and Comparative Example 1 in Table 1 which bridges pages 57 and 58. Neither of these compositions contains ingredient (6), the partially esterified epoxy resin. Therefore, the Examiner's statement on page 3 of the Action is not correct since the only difference between Example 1 and Comparative Example 1 (other than the one additional part of filler) is the presence of the compound having two or more thiol groups per molecule. It is this difference that provides the substantial improvement in results shown in Table 2 on page 60 with regard to adhesive strength after curing, the high-temperature and high-humidity adhesion reliability and the tests on display characteristics of a liquid crystal display panel.

Comparative Example 2 uses 10 parts by weight of the compound having two or more thiol groups per molecule (i.e., outside the claimed range of 0.001 to 5.0 parts by weight per 100 parts by weight of the resin composition). In this Comparative Example, it will be noted that the amount of epoxy resin is two times the amount of the compound having two or more thiol groups per molecule.

To provide a clearer side-by-side comparison of Example 1 and Comparative Example 1 and to provide an additional Comparative Example, a Declaration Under 37 C.F.R. §1.132 by one of the inventors is attached hereto. The additional Comparative Example provided in the Declaration includes 10 parts by weight of ingredient (6) which is the same amount used in Example 4 of the specification, but does not include the compound having two or more thiol groups per molecule and again provides substantially inferior results than can be obtained in accordance with the present invention. Thus, this evidence further addresses the Examiner's statement that any difference in results could be due to the absence of ingredient (6).

Applicants firmly believe that the evidence of record fully supports the patentability of the present invention, particularly since those of ordinary skill in the art will understand the effect of the defined thiol compound from the discussion in the specification and the explanation and technical evidence that has been provided.

Based on the foregoing information, applicants respectfully maintain that the cited prior art does not establish a *prima facie* case of obviousness and certainly would not lead to a recognition of the advantages which can be obtained in accordance with the present invention. Even assuming that the published PCT application corresponding to Miyawaki et al. constitutes "prior art" (in view of the fact that its publication date is subsequent to the Japanese priority date of the present application and the common ownership of the respective patent documents),

Miyawaki et al. would still not lead those of ordinary skill in the art to the presently claimed invention. As the Examiner has conceded, the Miyawaki et al. does not in anyway teach the claimed compound having two or more thiol groups per molecule in an amount of 0.001 to 5.0 parts by weight or 100 parts by weight of the resin composition.

In an attempt to bridge this noted deficiency, the Examiner has relied on Irving et al. and Slocki et al. to teach a polymercaptan. The Examiner appears to recognize that if one were to replace one curing agent for another, it would not meet the claimed requirement and would also be contrary to the results provided in the specification which shows that an amount of the ingredient (5) that is above the claimed range does not provide the advantages which can be obtained in accordance with the present invention. In order to justify the hypothetical combination, the Examiner has theorized that it would be obvious to supplement the curing agent of Miyawaki et al. with a mercaptan curing agent of Irving et al. and Slocki et al.. Such a position is improperly derived from applicants' own specification. There is nothing in either Irving et al. or Slocki et al. which teaches that the disclosed curing agent should "supplement" the curing agent of Miyawaki et al.. The latter patents describe a mercaptan compound as a curing agent and if one of ordinary skill in the art, without benefit of applicants' own specification, were somehow to focus in on this teaching, such an individual would use the curing agent in the same amount taught Miyawaki et al.. As shown in the Examples, the amount of curing agent taught by Miyawaki et al., is greater than that recited in claim 1.

Slocki et al. in the Examples starting with column 17, shows various systems wherein the amount of mercaptan is about half the epoxy resin blend which again would lead those of ordinary skill in the art to an amount that far exceeds the range

recited in claim 1 and is similar to Comparative Example 2. In this respect, the Examiner is reminded that it has long been held that it is impermissible within the framework of 35 U.S.C. §103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of parts necessary to the full appreciation of what the reference merely suggests to one of ordinary skill in the art, see *In re Wesslau*, 147 USPQ 391 (CCPA 1965) and *In re Dow Chemical*, 5 USPQ2d 1529 (Fed.Cir. 1988).

For all the reasons set forth above, applicants respectfully maintain that the cited documents do not establish a *prima facie* case of obviousness and even if it can be argued that it does, the technical evidence of record, including the submitted Declaration Under 37 C.F.R. §1.132, fully supports the patentability of the present invention. Therefore, reconsideration and allowance of the present application are respectfully requested.

Should the Examiner wish to discuss any aspect of the present application, he is invited to contact the undersigned attorney at the number provided below.

The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17 and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 024800.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: June 2, 2009

By: Robert G. Mukai
Robert G. Mukai
Registration No. 28531

P.O. Box 1404
Alexandria, VA 22313-1404
703 836 6620